Safety profile of latanoprost versus timolol in patients with open angle glaucoma or ocular hypertension: post 2000 setting

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Introduction

Glaucoma is one of the most important causes of blindness in the world[1]. The mainstay of pharmacological treatment for glaucoma is timolol. Latanoprost is one of the first prostaglandins that is used for chronic treatment in glaucoma patients and is superior to timolol for reducing intraocular pressure. However, the safety of latanoprost has been a concern[2].

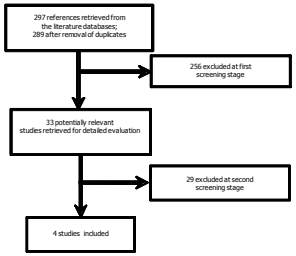
Objective

To systematically compare the safety of latanoprost versus timolol through meta-analysis of randomized controlled trials (RCTs) in open angle glaucoma (OAG) or ocular hypertension (OH).

Methods

Medline and Cochrane Controlled Trials Register (CCTR) were searched for RCTs published post 2000, assessing head to head comparison of latanoprost vs. timolol in OAG or OH. Only randomized, double-blind studies assessing safety of latanoprost and timolol in adult patients with OAG or OH were included in the review. The flow of studies through the review is shown in Figure 1 according to PRISMA guidelines. Two reviewers undertook data extraction independently, any disagreement was then resolved by a third independent reviewer. A customized spreadsheet was used to extract the relevant outcomes, including the study duration, sample size, number of patients with local and systemic side effects and the proportion of withdrawals due to adverse events.

Figure 1: Study flow diagram



Results

Four RCTs enrolling 1688 patients met the inclusion criteria out of the 289 studies identified[3-6]. As evident from Figure 2a, latanoprost was associated with increased incidences of hyperemia (risk ratio [RR] = 2.69, 95% CI = 1.37 to 5.28), iris pigmentation (RR = 10.81, 95% CI = 1.37 to 85.47) and pruritus (RR = 3.05, 95% CI = 1.06 to 8.73) compared to timolol (Level I evidence).

One RCT (Level II evidence) reported that latanoprost was associated with an increased incidence of eyelash changes (risk difference [RD] = 0.23, 95% CI = 0.16 to 0.29; number needed to harm [NNH] = 4, 95% CI = 3 to 6). There were no statistically significant differences in the incidences of other AEs including blepharitis, cataract, dry eye, eye irritation, eye pain and keratitis between latanoprost and timolol (Figure 2b). No statistically significant difference was observed in withdrawals due to AEs across both the treatments (RD = 0.02, 95% CI = -0.02 to 0.05).

Figure 2a: Forest plot for adverse events (hyperemia, iris pigmentation, and pruritus)

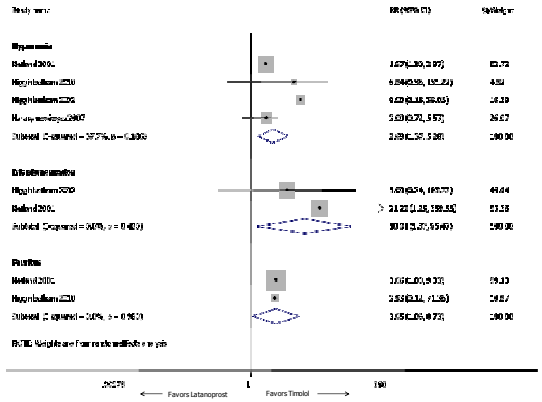
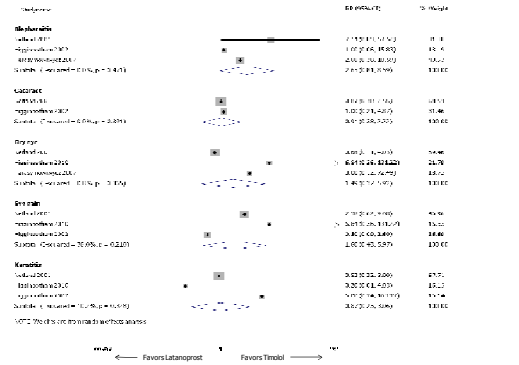


Figure 2b: Forest plot for adverse events (blepharitis, cataract, dry eye, eye pain, and keratitis)



Conclusions

This systematic review and meta analysis suggested that timolol displayed a better safety profile than latanoprost for adverse events including hyperemia, iris pigmentation and pruritus in patients with OAG or OH. However, long term safety could not be assessed as only a few included studies evaluated patients beyond six months.

References

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